DOCUMENT RESUME

ED 410 383 CE 074 400

AUTHOR	Clover, Darlene E., Ed.; Follen, Shirley, Ed.
TITLE	Case Studies in Environmental Adult and Popular Education.
INSTITUTION	International Council for Adult Education, Toronto (Ontario).; International Network for Sustainable Energy, Copenhagen (Denmark).
PUB DATE	1997-00-00
NOTE	61p.; A product of the Learning for Environmental Action Programme.
PUB TYPE	Reports - Research (143)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Adult Basic Education; *Adult Education; Adults; Developed Nations; Developing Nations; *Educational Practices; *Environmental Education; Environmental Influences; Foreign Countries; *Nonformal Education; *Popular Education; Rural Areas; Skill Development; Social Influences; Teaching Methods; Values Clarification

ABSTRACT

Following an introduction by Darlene E. Clover and Rene Karottki, this booklet provides 16 case studies about nonformal environmental adult education: "Environment and Development in Argentina: Innovative Experiences in Adult Learning" (Raul A. Montenegro); "Learning for Environmental Action: Environmental Adult and Popular Education in Canada" (Darlene Clover, Shirley Follen); "Critical Thinking: Creating Change through Environmental Adult Education, Canada" (Darlene Clover, Shirley Follen); "Teaching and Learning Environmentally-Friendly Energy in Denmark: The Schools Energy Forum" (Jette Ellegaard, Rene Karottki); "Save the Plants that Save Lives: Environmental Adult Education in Fiji" (Kerrie Strathy, Kesaia Tabunakawai); "The Women's Community Health and Organizational Development Project, Patzcuaro Lake Basin, Mexico" (Joaquin Esteva); "Planting the Seed: Developing a Sectoral Environmental Education Program in the Philippines" (Jose Roberto Guevara); "Sustainable Solutions to Environmental Problems: Tribal Habitation and Community-based Environmental Adult Education in India" (Arttyananda Pradhan, Ku. Latika Mishra); "Community Participation and Education: Biogas Extension in Urban and Rural India" (Zareen Myles); "Rainforest Interpretation: Environmental Adult Learning in Malaysia" (Forest Research Centre); "Les Activities d'information, education et communication dans les programmes de l'amicale des groupements paysans de Foundiougne (AGSF)" (Angelle Fatou Sarr); "Women as Environmental Educators in Uganda: The Joint Energy and Environmental Projects (JEEP)" (Ruth Kiwanuka); "Self-reliant Healthy Communities through Environmental Adult Learning: The Multi-Purpose Training and Employment Association (MTEA), Uganda" (George Musisi); "Integrating Environmental Education into Daily Life Activities in Uganda" (Owor Peter Minor); "The Bulubandi Women's Group: A Story of Adult Environmental Learning in Uganda" (Ruth Namusubo); and "An Integrated Biogas/Fodder Education Project for Small-Scale Dairy Farmers in Zimbabwe" (Lucy Ann Ruzive). (KC)

ED 410 383

Case Studies in Environmental Adult and Popular Education

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The LEAP programme is a priority Action Area for the International Council for Adult Education (ICAE). LEAP is coordinated by the North American Alliance for Popular and Adult Education (NAAPAE), ICAE's North American regional member. Based on an holistic approach, LEAP strives to strengthen popular movements involved in increasing people's understanding of the interdependence of all life, of our relationship with nature, and of the interconnected forces – personal, economic, political, social, cultural, technological – which foster or impede social change.

LEAP – Learning for Environmental Action Programme
International Council for Adult Education
Transformative Learning Centre
OISE/UT, Room 7-184
252 Bloor Street West
Toronto, Ontario M5S 1V6
Tel: 416-923-6641 ext. 2367
Fax: 416-926-4749
E-mail: dclover@oise.utoronto.ca

INFORSE – a global sustainable energy network

The International Network for Sustainable Energy, INFORSE, is a global network of NGOs, founded in 1992 at the Rio Earth Summit. INFORSE brings NGOs world-wide together around the use of sustainable energy, particularly in developing countries. INFORSE is organised with nine regional co-ordinators located in organisations in the United States, Uruguay, Brazil, Senegal, Kenya, India, The Philippines, Slovakia, and Denmark. INFORSE supports the development of simple and accessible information materials, training, and information exchange and networking among NGOs as important strategies for influencing the public opinion and policy.

INFORSE, International Network for Sustainable Energy
P.O. Box 2059
1013 Copenhagen K Denmark
Tel.: +45 3312 1307
Fax: +45 3312 1308
E-mail: inforse@inforse.dk/

Editors: Darlene E. Clover and Shirley Follen

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Case Studies in Environmental Adult and Popular Education :
An introduction

> The goal of environmental education is to develop a world population that is aware of and concerned about, the environment and its associated problems and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones.
>
> *The Belgrade Charter, A Global Framework for Environmental Education, 1975*

> The capacity of any nation to prepare its people for the future relies on the education...of its citizens.
>
> *Ontario Learning for Sustainability Partnership, 1996*

As the twenty-first century approaches, concern grows over the continuing capacity of the planet to sustain human and all other life forms. Education is can be an effective tool to meet these challenges and to help people work towards the development of more equitable, healthy and sustainable societies. For adult educators, this means a more concerted effort at weaving environmental issues into our theory and practice. For environmentalists and others working within an environmental context, it means strengthening the capacity of the educational work to change attitudes and behaviours and to mobilize citizens for action. The case studies included in this booklet come primarily from the global networks of the International Council for Adult Education's Learning for Environmental Action Programme (LEAP) and the International Network for Sustainable Energy (INFORSE). These case studies provide excellent examples of how environmental issues are being incorporated into adult education practice and how adult education theories and methods are being used in the environmental movement around the globe.

Environmental adult education is about learning to see the whole picture surrounding a separate problem such as air pollution or deforestation – the history, values, perceptions, emotions, structures and processes that cause the problem. It is also about helping people to develop solutions to these problems. Therefore, learning within an environmental context must be both a vision and a process. The vision revolves around building prosperity, well-being, health, social justice and equality, not simply the protection of the environment.

The booklet provides an opportunity for reflection on some of the non-formal adult educational work being done in various parts of the world. The case studies contained within it come from Argentina, Canada, Denmark, India, Fiji, Malaysia, Mexico, Philippines, Senegal, Uganda and Zimbabwe. They outline activities and ideas for concrete ways in which environmental and social issues can and should be connected through adult and popular education. The case studies weave environmental and social change educational practices in a variety of ways. First, they illustrate the ecological challenges that communities around the world face on a daily basis and the creative means by which educators, activists and community members meet these challenges. Second, they bring together the numerous creative educational approaches and strategies being used. Third, they suggest moving away from more conventional educational practices towards more critical, integrative, and skills and action-oriented approaches. Fourth, they explore different sets of values that work to shape how individuals see and interpret environmental issues and their solutions. The way in which views, cultural traditions, artifacts and values are understood has major implications for the development and delivery of environmental adult education activities and programmes. And finally, they are effective practices that should receive greater political and financial support.

In keeping with the diversity and multiplicity of environmental problems, the case studies encompass a number of objectives. One objective is to critically examine the root causes of the environmental crisis, the structures, practices and beliefs which underlies our present problems. A second objective is to help people to better understand the links between environmental and social issues; perhaps better said, there are no enviromental problems, just a lot of social ones. A third objective is to help adults develop skills to use alternative energies for cooking and heat as well as traditional medicines to create more healthy communities. A fourth objective is to ensure that the learning is experiential and above all, fun. A fifth objective is to provide the opportunity to discuss and debate concerns about difficult issues such as consumerism and deforestation. A sixth objective is to encourage critical and creative thinking process in people. A seventh is to draw on people's own potential to address and find solutions to their own problems. Still other goals address relations of power, bringing adults and children together in collective learning spaces, empowering women by acknowledging and working with knowledge and strengths as environmental educators and activists, and integrating enviromental adult education into people's daily lives.

The process of developing a theoretical framework and practice in this new field of environmental adult education is exciting, challenging, stimulating and overwhelming. However, as Wangari Maathai of the Kenyan Green Belt Movement stated so eloquently, and as this booklet demonstrates:

You have challenged us, we shall not disappoint you.

Darlene E. Clover, LEAP Inter-Regional Coordinator, NAAPAE
René Karottki, Secretary, INFORSE

Environment and Development

in Argentina: Innovative Experiences in Adult Learning

by Dr. Raul A. Montenegro,
President of FUNAM (Environment Defense Foundation),
Argentina

Background

FUNAM is a grassroots non-governmental organization (NGO) which has developed its activities since 1982, linking five main areas:

1. Education and training
2. Work in the ground and production of sustainable proposals
3. Activism and citizen's advocacy
4. Independent scientific research
5. Networking

Currently it is the most active and independent NGO in Argentina. FUNAM co-founded the Cordoba's Council of NGOs (with more than 70 NGOs members) and co-organized the First Environmental NGO Meeting in Argentina (1984). During 1990-1991, FUNAM co-organized the NGO Summit which was held in Paris (1991). Since 1982, FUNAM chaired more than 400 active campaigns, field studies and research both at the national and international level.

The most successful achievements include:

- closing Los Gigantes uranium mining; building of sewage and safe drinking water systems among indigenous populations and poor villagers;
- campaigns on environmental education involving more than 900,000 children and adults in 43 countries;
- stopping several deforestation projects (one of them of 50,000 hectares in Santiago del Estero province); discovery of five illegal, toxic waste dump sites;
- stopping six incineration plant projects;
- successful campaign to stop the building of a nuclear power plant in Guatemala (Central America);
- more than 30 regulations and laws (14 in force); 40 proceedings at the Court of Justice against officials and private enterprises which caused environmental hazards;
- reducing the illegal hunting and trade of lizards (Tupinambis spp.) and turtles (Geochelone spp.);
- stopping three projects of radioactive waste repositories.

FUNAM also develops research on cancer and cancer prevention and acts as technical adviser among groups of citizens and farmers. In 1995, FUNAM produced the first "Emergency plan for industrial cities".

Using all of their experiences accumulated since 1982 and taking in account social needs, FUNAM developed seven main projects on adult education.

1. Telar electronic network

FUNAM plays a leading role in the Telar electronic network. More than 700 secondary and adult schools are inter-linked through the exchange of information, experiences and strategies. Most schools are located in poor areas and have free access to Telar. Through our node we offer several "windows". One of these involves "grassroot questionnaires" which ask adults and children about environmental problems and propose solutions. This questionnaire is available in small markets such as fruit stores, drugstores, warehouses, public festivals, bus stations and hospitals.

Each participating school leads the process. It's the best way to understand environmental problems and to design solutions. Liliana Maulini and Andrea Diaz are responsible for this project. Inside Telar we also offer windows on "Use of citizen rights" (e.g. how to denounce environmental hazards at governmental departments and courts of justice; how to introduce these issues in media; how to organize citizens movements); "Directory of NGOs and GOs"; "Energy saving and soft technologies"; "Voice of the children international campaign"; "Current environmental hot spots"; "Directory of citizen's successful campaigns". Besides E-mail format we also work through mail, sending and receiving diskettes, leaflets, postcards and audio tapes. In the future we will develop formats for blind people.

2. Videos on environment and sustainable development

Our project involves a set of 12 videos. Two videos were finished this year: Video 1, *Our ecosystems*, VHS-Pal N, 25 minutes and Video 2, *Our garbage*, VHS-Pal N, 25 minutes. Both are also available for television (cable, air) in Beta and U-Matic format.

The video *Our Ecosystems* explains the functioning of natural, productive and urban ecosystems, their importance to the future and how to achieve sustainable development. In the video *Our Garbage*, we promote sustainable use of natural resources, recycling, energy saving and biogas plants, and we fight against overconsumption, waste burning and toxic landfills.

The videos 3 to 12 will be developed this year. Their issues are: *Chemicals*, including hazardous waste and radioactive materials (Video 3); *Atmosphere and Air Pollution* (Video 4); *Water Basin Management and Pollution* (Video 5); *Forests, Grasslands and Protected Areas* or Biodiversity 1 (Video 6); *Wildlife and Illegal Trade and Hunting* or Biodiversity 2 (Video 7); *Fire, Floods and Ecosystem Destruction* (Video 8); *Sustainable Energy Sources and Soft Technologies* (Video 9); *Citizens, Farmers and Grassroots Leaders of Change*, encourage ideas

towards self organization (Video 10); *Global Environment Problems and Solutions* (Video 11) and *Signs of Hope: Successful Stories from Around the World* (Video 12).

Each video also includes a booklet on the issue. All of these videos belong to the *We Only Have One Environment* project (Solo tenemos medio ambiente) produced in Spanish by Patricia Jalil (script coordinator) and narrated by Raul Montenegro.

3. Active educational project (AEP)

This is our most innovative achievement in children's and adult education.

Since 1982, FUNAM has developed an advocacy role both in Argentina and Latin America. Each of our active campaigns on specific issues – such as illegal hunting of 5,000 lizards or the release of Tritium by Embalse nuclear power plant – include educational messages and technical explanations. Both are introduced in press and video releases, info graphics and interviews and are disseminated through the media. We link activism and education, maintaining high levels of accuracy and technical seriousness. For example, in our campaign against nuclear power in Guatemala, we stopped the Canadian offer of a Candu 3 nuclear power plant; we participated in an international campaign to stop the deforestation of 50,000 hectares of "Chaco" dry forests in Santiago del Estero by Australian AAA company (finally stopped); we campaigned against Parana Medio giant dam in Argentina (currently ongoing); we campaigned against incineration of hazardous waste in Salto, Inés Indart, Laguna Paiva, Villa Allende, Rio Tercero and Santa Rosa, and so on. Each campaign also includes the most recent scientific findings. During our recent campaign against the incineration of polychlorinated compounds in Rio Tercero (May, 1997) we circulated the decision taken by IARC in Lyon, France (February, 1997) which classified dioxins as "carcinogenic type 1". FUNAM is contributing to adult and children learning through press conferences from which the data, pictures and technical information appears in TV, radio and newspapers all over Argentina and even in foreign media.

4. Radio programs

Since 1991 FUNAM has short programs on two important popular radio stations: "Radio Sur" and "Radio La Ranchada" (FM). Through them we present our active educational strategy (AEP) mixing environmental and social "hot spots", technical facts and advice for grassroot organizations. Soon we will produce "packaged" programmes to be distributed in Argentina and in other Spanish-speaking countries.

5. FUNAM's participation in the Free University of the Environment (ULA)

This open university was founded by the Municipality of Cordoba. ULA promotes courses for adults and children mixing popular issues and technical information following the Danish folk high school strategy, on a smaller scale. Four centers of people participation (CPCs) are intensively used all year. Our videos on environment and development (*Our ecosystems*; *Our garbage*) are exhibited on ULAs premises and in CPCs.

6. Adult education through children

FUNAM chaired two main children's campaigns: "Campaign for peace and life" which worked with 350,000 children in Argentina (1985-1990); and jointly with Norwegian Campaign on Environment and Development, "Voice of the Children International campaign" which worked during its first stage with 600,000 children in 43 countries (VOC, 1990-1996). Both initiatives included public hearings with adults and children, and "Children's Appeals". VOC public hearings have been held all over the world in large industrialized cities, small towns and poor villages, providing innovative fora for adults and children, leaders and citizens. This transfer of information from children to adults is producing moderate to significant changes of attitudes among adults.

7. Teacher's training project (TTP)

FUNAM develops training activities for teachers of adults through its Eco-Workshops and Eco-Schools. During the first stage of the TTP project (1995), 80 future teachers took its courses. In 1996 FUNAM signed an agreement with the teachers' trade union ("Unión de Educadores de la Provincia de Córdoba, UEPC"). Since 1996, more than 500 teachers pursued courses on environment, development, campaigning and grassroot organization. Jointly with PANAVI, an NGO from Argentina, FUNAM also developed educational activities for teachers who work in schools for adults. Julio Avila is responsible for this project.

Learning for Environmental Action:
Environmental Adult and Popular Education in Canada

By Darlene Clover and Shirley Follen
Transformative Learning Centre
University of Toronto, Canada

Background

Environmental and social problems in Canada have increased greatly over the past few decades. Unemployment is very high as techonolgy has displaced jobs and industries have closed; water and soil are more contaminated; forests and other valuable resources are disappearing; and violence has escalated in both rural and urban communities. However, what has also increased is people's desire to better understand the root causes of these problems and work together to halt environmental and social degradation and to bring about change.

The Ontario Healthy Communities Coalition (OHCC) is a network of community groups and individuals representing all sectors of society (health, economic, education, social, culture, environment, etc.) working together to transform their communities into more healthy and sustainable places to live. Education is one of the areas the OHCC has been working to strengthen.

The Education Sub-Committee of the OHCC felt that one of the most effective means to bring about change would be to strengthen educational opportunities. However, they also realized that the educational methods needed to be participatory, creative, experiential and action-oriented if they were to be of use to community members. As a result, the Transformative Learning Centre was asked to design a series of environmental adult education workshops in various regions of Ontario. Three of the key goals of the TLC are:

1. To strengthen the educational component of the work of environmental groups and community organizations;
2. To raise awareness among adult educators of environmental issues and their links to other social issues;
3. To make links between universities and the community.

Although each workshop differed according to the specific needs of the community, the goals and objectives were similar. The overall goal of each workshop was to demonstrate how education can be used as a vehicle for learning and action within the community. The key purposes were to:

1. Share the theories, practices and principles of adult, feminist, popular and environmental adult popular education;
2. Encourage people from various sectors in society (health, environment, education, economic, etc.), age groups, gender, and so on to engage effectively and creatively with one another through a popular education process;
3. Examine the connections between the socio-political and economic forces and the environment;
4. Engage in a process that helps us to reconnect with nature as both a teacher and as a site of learning;
5. Develop future action;
6. Have fun together.

Rayside Balfour Workshop

Below is an outline of the Environmental Adult Popular Education workshop that took place in Rayside Balfour, a small community in northern Ontario. Eleven women and nine men took part in a two-day workshop. Ages ranged from mid-teens to mid-sixties. In addition, the interests, activities and experiences of the participants varied greatly which meant that a great deal of expertise, knowledge, commitment and energy was brought to the workshop. Participants identified themselves as high school and university students, professors of outdoor education and nursing, community developers, organizers and animators, members of environmental and community non-governmental organizations, health educators, municipal government representatives, inter-generational home-schooling workers, and naturalists.

The following are the activities:

1. The first activity was to share the purposes and goals of the workshop.
2. *The Green Callistenthics*'s purpose was to have fun and get people energized for the next few hours.
3. The third activity was to get acquainted with each other and discuss where we fit in the larger scheme of things. Each participant was asked to give their name, environmental interest, reason for coming, and finally, how they saw themselves as a part of the rest of nature.
4. *The Fishpond* was designed to share the basic principles and practices adult, popular, feminist, and environmental education. Materials such as information sheets and brochures, books, manuals, research reports, and newsletters were made available.
5. *Causing the Problem or Creating the Solution: Exclusion Versus Inclusion.* The purpose of this three part activity was to discuss the feelings, and dynamics of inclusion and exclusion as a social process, power relations and develop some concrete action plans.

   In *Part A*, participants formed small groups by age. All the youth in the large group caucused together. Each group member was given a marker and two

pieces of flip-chart paper one labelled "Inclusion" the other "Exclusion". They drew symbols or images of how it feels to be included and excluded. The images showed groups of flowers versus a single flower; happy groups of people holding hands versus one person standing alone; a beaker of oil and water separated versus a beaker of mixed liquid; walkways for people and bicycles versus roads for cars only; and a mixed forest of trees versus a mono-crop.

Reasons given for why people/nature were included or excluded revolved around insecurity, peer pressure, domination and control, defensiveness and competitiveness and pre-conceived ideas/biases. Participants then brainstormed ways in which young people could have a place in building communities. The young people talked about how and why they needed ideas for community activities and so on to come from them, why it had to be their choice. Adult participants agreed with this, noting that too often, activities were organized by adults which was probably why they failed. It was agreed that what was required was to provide more opportunities for young people to make choices about what they wanted and needed.

Part B of this activity revolved around identifying various environmental/social issues in the community. In the same small groups (youth in one and adults in others), participants identified a spokesperson and two issues that were of particular importance to them and why they were important. The issues put forward by the youth group were: no swimming due to polluted waters, adults not listening to them, being made to feel inferior or not good enough by their parents, having no place to 'hang-out', but most importantly, the violence that they experienced in their community and their schools. The adults were astonished at this last point.They themselves had identified very different issues such as transportation, smoking/attitudes to health, youth disillusionment, lack of green-space, employment, resources, values and respect.

The large group unanimously decided, in the spirit of inclusion, to listen to the young people and go with their issue which was titled *Safety Through Inclusion*.

Following this, in mixed young and older small groups, participants examined the issues of power and control in their communities and how they were connected to the issues of inclusion, exclusion, violence and social and environmental degradation.

Part C of the *Inclusion Versus Exclusion* activity brought people together to develop concrete strategies to make the community a healthier and less violent place for the young.

6. *Learning From, About and With Nature*

The purpose of this activity was to use the natural world as a learning and teaching tool and way of relating to the land and each other; introduce a method of teaching that breaks the normal rhythm and adds diversity; raise awareness about and share an environmental theme/issue; and introduce other effective

ways of teaching such as poetry, song, storytelling and theatre.

In pairs, participants walked around a nearby park that bordered a lake and collected soil samples and potential soil makers. They then placed their findings on paper that had been laid out on the ground. Each pair touched and/or smelled the soil and shared how it felt and smelled, and what they saw in a beautiful display of water, dandelions, toad stools and mushrooms, clover, flowers, branches, twigs, leaves, moss, bark, apple core, a spider, a worm, feathers, a nail, a cigarette butt, beer caps, paper and the links between this activity and the previous one.

The beautiful finds from the park

They then individually examined this mosaic of life and death and made connections with what they saw to the issues that had been talked about in the previous activity. They also responded to questions such as why using nature as teacher and classroom is important, and what was different about this educational experience. A few of the responses were:

- it gets us out of traditional ways of educating and reminds us that simplicity is beautiful and best
- it shows its own strength, diversity yet fragility the best
- the natural world is like life itself and can teach us about ourselves in different ways than from books; we can learn in other settings
- I have had a wonderful experience with something that has been there all along and I didn't really notice
- it was a more nurturing, powerful, productive, useful place to learn and teach
- it's about inclusion, bringing diverse things together such as making the connection between healthy soil and a safe community

Following this activity, participants broke into small groups and developed a theatre production, a song, a poem and a short story as ways of sharing the issues of soil, nature, learning and working and growing together.

7. *The "Art" of Educative Action*
The purpose of the final activity was to develop action strategies from the issues of *Safety Through Inclusion* and commit themselves in the form of a letter to taking action in the immediate future and to setting a more long-term goal.

Participants drew symbols of their community on a large piece of butcher paper attached to the wall and were then asked to describe what they had drawn to someone who was not from the area. The map of the communities contained lakes, trees, people, fish, a church, healthy community symbols and so on.

In mixed small groups, participants identified a spokesperson and then brain-stormed educative and/or action strategies which they recorded on light bulbs, question marks, lightning bolts and rain drops. These were symbols of action, nourishment and the importance of ideas and asking questions.

Participants then filled in a form in which they committed themselves to take immediate direct action individually or collectively around an environmental issue of their choice. This letter was mailed to each participant three weeks later.

8. *Dream Catcher Evaluation*
As a conclusion to the workshop, participants passed around a Native Canadian Dream Catcher and shared their dreams for the future based on what they had experienced, felt and learned.

Values and Principles

The following are the guiding principles of Environmental Adult and Popular Education:

- we need to passionately re-connect with the rest of nature through all our senses and emotions;
- we need to critically examine the unjust power relations behind contemporary social and environmental trends;
- we learn best by beginning with our daily lived experience and by understanding our own locations, contexts and histories;
- we are responsible for taking personal and collective action to re-create a healthy planet for all species both now and in the future;
- we can all transcend the bonds of traditional education
- we are all artists, poets, storytellers, songwriters, artists, dreamers, and more

Reflections/Outcomes

Written feedback from participants identified the workshop activities were effective learning processes that they could and would use in the future. We deliberately developed the workshop to include a time for young people to be together as a group. We did this to strengthen their voices within the workshop because they felt so left out of political processes in the community. It was noticeable that after this part of the workshop, their participation was much stronger than it had been in the open sessions. We found it necessary to continually remind ourselves of the importance of listening to the young people. We agreed that during the plenary sessions we would alternate the comments from one adult to one young person.

Critical Thinking:
Creating change through environmental adult education, Canada

By Darlene Clover and Shirley Follen
Transformative Learning Centre
University of Toronto, Canada

Background

Each year, the Harmony Foundation organizes a Summer Institute on Environmental Education. The 1996 summer program was held at the Lester B. Pearson College, near Victoria British Columbia, a beautiful setting by the ocean, overlooked by giant Douglas Firs. Approximately 36 people attended (25 women and 11 men) came from Brazil, China, Guatemala, Ghana, Israel, Kenya, Mexico, Philippines, South Africa, and Canada.

The summer institute was designed to explore the connections among values, education and behaviour change while recognizing the interdependence among social, economic, political and environmental issues. Community, school and workplace educators and leaders from around the world shared their expertise and applied new knowledge and skills gained to create innovative educational strategies. The program included the following main sections: Values Exploration, Tools for Change which included Critical Thinking, Sustainable Societies, Power of Communication, Educating for Change and Action Team Work.

The following is a brief summary of the two workshops entitled *Critical Thinking* and *Educating for Change*, designed and facilitated by members of the Transformative Learning Centre.

Workshop I - Critical Thinking in Environmental Education

Introductions

Introductions are very important to a workshop and are designed to suit the group and topic. Each participant was asked to name an animal indigenous to their area and most added comments as to why these animals were important or significant. Because of the global nature of the group, the responses were surprising and different. One response especially caused the group to react with loud laughter when a participant named certain political party members.

Theoretical Dimensions of Critical Thinking

The purpose of this activity was to put forward some of the key concepts and chief components of critical thinking, to share and discuss our ideas of the role and importance of critical thinking within an ecological context. Critical thinking is a matter of sheer survival. Our society is in a state of flux–morally, technologically and socially–in crisis after crisis. Unless we become critical thinkers during periods of crisis, we are out of control, like shipwrecked sailors hanging on to pieces of flotsam trying to survive. It is organizationally and culturally, as well as personally, liberating to be able to analyse critically the assumptions underlying our own actions and those of others.

Participants also identified some of the obstacles to critical thinking that existed in society and primarily in our education system.

Corporations R US - Facilitating Critical Thinking

The purpose of this activity was to engage in a creative and experiential activity that encouraged a critical thinking process, challenged assumptions within an ecological context, and examined inherent contradictions in order to better understand our own assumptions and contradictions. We used the issue *consumerism* because it is so important, particularly in the western world.

Participants were divided into groups of four, provided with flip chart paper, scissors, coloured markers and copies of three different catalogues or advertising flyers from companies such as Walmart, Canadian Tire and Shopper's Drug Mart. They created word and image mosaics as a response to the following questions:

1. What are the societal values represented in these catalogues?
2. What types of societies do they attempt to create and why?
3. How/in what ways do they create these?
4. What are the social and ecological implications?
5. What else?

Each group reported in their own way. One of the groups used a popular theatre skit to discuss consumerism in Canadian society and its global impact.

Spirit Stone Evaluation

The purpose of this activity was to share the potential, fears, and pitfalls of challenging critical thinking in ourselves and others. Participants passed around a Spirit Stone from New Zealand and described their feelings. The responses confirmed that consumerism was an important issue that few had focused on before. Never before had they questioned the messages found in the catalogues. The participation of adults from various parts of the globe confirmed the view that consumerism is a rapidly growing problem world-wide. Many participants mentioned that they had plans to use this activity with their own students.

Workshop II - Educating for Change

Introduction

The purpose of this workshop was to connect all the other activities that had taken place during the Summer Institute and to prepare for the Action Team work that would follow.

To create a comfortable, relaxed atmosphere, the session asked people from each country that was represented to make the sounds of an animal or bird, or sing a line from their national song. The facilitators began the activity with a bear growl which was followed by a variety of fascinating sounds from the group including a strident first line from the Brazilian National Anthem.

1. River of Learning and Transformation

This activity was used to synthesize and reconnect four days of activities and learnings and provide an opportunity to experience visually the participant reactions and outcomes. It also served as a bridge to the next activity which was the Action Team Work.

A river scene was drawn on a large sheet of paper attached to one wall in the meeting venue. Participants were asked to record feelings, knowledge, and experiences from the Institute on pieces on colourful cut-outs of fish, reeds and flowers. They identified:

1. key processes/tools/ways of educating acquired (reeds)
2. new knowledge/understanding acquired (fish)
3. emotions/feelings they would carry with them into the next action phase (flowers)

2. Alternative and Transformative Educations: Theoretical Dimensions

As an introduction to this session the following quotation by Adrienne Rich was read to the group:

> Theory – the seeing of patterns, showing the forest as well as the trees. Theory can be a dew that rises from the earth and collects in the rain cloud and returns to earth over and over. But if it doesn't smell of the earth, it isn't good for the earth.

Facilitators and participants share concepts and principles of educational practices such Adult, Popular, Feminist, and Environmental Adult Popular Education and global learning. A First Nations participant shared some principles of Indigenous learning.

3. Creativity In Action

The purpose of this activity was to use storytelling, theatre, poetry and song as educational tools to re-enforce the strength of the participants to take positive action. Each of the four small groups was given 30 minutes to create five-minute presentation.

Here are three of the groups in action.

Group 1 – Song – *Singing in Harmony*

Chorus:

We all see the world as one,
In Harmoneee.
We won't rest till the
Work is done,
In Harmoneee.
The struggle is deep and the struggle
Is wide,
In Harmoneee!
Grab your soul, its our strength
Inside,
In Harmoneee!
All life forms are in the circle,
In Harmoneee
Heart beat breadth of Mother Earth,
In Harmoneee

Adults hope and children smile,
In Harmoneee
Religion, colour et langue
en Harmoneee

With our work we seek to weave
In Harmoneee
A complex web of simplicity
In Harmoneee.

Group 2: Three-minute commercial-*Teaching Green in British Columbia*

Group 3: Skit – *Farmers Fight Back*

Evaluation

At the conclusion of the presentations, participants were asked how they felt and what was the key thing they had learned in developing the River and/or the final activity.

Outcomes

The presentations were inspiring and confirmed the creativity, energy, and transformational learning values represented by the group. Everyone was energized and excited to move onto the Action Teams.

The response to both workshop sessions was positive. The participants actively engaged in discussions, were open to learning new practices and to being challenged to think more deeply about many different issues that affect their lives. Many participants were forthcoming in naming their biases and sharing these with others. Participants carried the elements of critical and creative thinking with them into the action groups. They made plans to apply what they learned to the development of more engaging and stimulating education sessions and activities in either their community or classroom.

Teaching and Learning Environmentally-Friendly Energy in Denmark: the Schools Energy Forum

Editors:
Jette Ellegaard, IVE
René Karottki, FEU

What is the Schools Energy Forum?

The purpose of the **Schools Energy Forum** is to provide better possibilities for involving an understanding of sustainable energy in teaching. This is in fact one of the intentions of Energy 21-the Danish Government's Energy Action Plan-that the adaptation of attitudes is a significant condition necessary for creating the desired development. This development comprises, among other things, an effort towards behavioural changes and a broad range of effects within energy savings, the effective use of energy and renewable energy.

The **Schools Energy Forum** is aimed teachers in primary schools as well as both adult and general education, and provides information regarding teaching materials, etc on the subjects of energy and the environment.

The **Schools Energy Forum** has been implemented jointly by the Danish Organisation for Renewable Energy, the Renewable Energy Information Centre (at Danish Technological Institute) and the Forum for Energy and Development. Representatives from the County Centres, the Electricity Utilities (ELFOR) are participating as are the Cooperating Energy and Environmental Offices, and the Energy Movement OOA. The Forum is supported financially by the Ministry of Education, the Danish Energy Agency and the EU under the Alterner programme.

In Energy 21, it is explicitly mentioned that especially schools and technical training ought to be active in establishing a high level of consciousness regarding energy among the consumers of the future. But the field of adult and general education is also significant.

The Schools Energy Forum

The **Schools Energy Forum,** once established, will become a useful tool for the teachers. In the course of time, it will develop and become an institution thatteachers can contact in order to obtain inspiration for teaching sequences, materials etc. on the topics concerning energy and the environment.

Quite a lot of work must take place before the **Schools Energy Forum** is finally established. Thefirst issue of the newsletter from the **Schools Energy Forum** has been published; it gives a short, general view of the work to be completed up until the actual establishment of the Forum. Meanwhile, the individual teacher can already draw on the information which is being formed in the process of creating the Forum, and will simultaneously be instrumental in helping the project group with information and comments. As already mentioned, the primary focus for the Forum is the field of energy. Because the field of energy cuts across a long list of other sectors within society, the Schools Forum will naturally come into contact with other environmental fields.

The first issue of the newsletter is "Info from the Schools Energy Forum". The newsletter is aimed at all teachers who are interested in the fields of energy and the environment. The newsletter will regularly pass on information about the Schools Energy Forum. The first issue gives an introduction about the goals of the **Schools Energy Forum**.

Examples of materials

At the **Schools Energy Forum**, the individual teacher will be able to find useful information about various subjects within the field of energy. It will be possible to gather a large part of the information from a database, probably via the Internet. The database will contain proposals for actual teaching plans with materials and resources, in which environmentally-friendly energy is the main theme. There will be a summary of different materials and books, PC programmes, etc. which it will be possible to make good use of in teaching, as well as an overall view of the different possibilities for excursions in Denmark. Finally, the intention is to obtain a list of actual persons who will be available as guest teachers in a specified teaching sequence.

In addition, the **Schools Energy Forum** will, in the course of time and to the extent that funds are available, develop new teaching materials in step with requirements which may arise.

Materials which may immediately become necessary are, for example, textbooks, construction work sets, demo-models, interactive programs, games, etc. The material will be adapted within the various fields and for the various target groups.

Organizational construction

Together with the **Schools Energy Forum**, a new cooperation and dissemination structure will be introduced, which will comprise a wide circle of players within the fields of information and teaching, linked together with expertise within the field of energy. The organization will be divided into three levels: local, regional and national.

The local level is the individual teacher and school. The teacher plans the teaching sequence which is suitable for the level or grade of the class. With assistance from the **Schools Energy Forum**, the teacher can find information about topics in various teaching sequences as well as lists covering suitable technical aids in order to support his or her teaching, such as text books, games, assembly kits,CD-ROMs, lectures, etc.

The regional dissemination offices will contribute by promoting technical aids as well as by passing on information and offering courses for further support.

The regional level comprises the regional dissemination centres, which will be established in conjunction with the Energy and Environmental Offices as well as the County Centres, involving the local authorities, the electricity utilities' information centres as well as other energy and environmental information centres.

The national level is the **Schools Energy Forum**, itself, which is to promote and develop teaching supports and materials for the schools and other educational institutions. In this way, it will become a natural forum for producing and exchanging material and experiences, with a well-constructed information and distribution network, on the regional and local levels.

The **Schools Energy Forum** will come to cooperate with or further develop other initiatives which are taken generally or in the field of energy in the actual school, for example: "Green Flag - Green School".

Draft for seminar

The **Schools Energy Forum**'s main contribution on the national level will be the development and dissemination and/or marketing of teaching plans, materials and other technical aids, which will become tools for the teaching of environmentally-friendly energy. It is important that the technique and content are integrated. A seminar will therefore be held on September 26, 1997 at the County Centre for rhus County (in Skanderborg). Here, representatives from the County Centres, pedagogic centres and regional and national energy dissemination centres are invited to a seminar. This seminar will explore how the cooperative structure between the pedagogical and technical approaches to teaching environmentally-friendly energy can best be linked together. Much importance will be placed on taking the individual teacher's everyday job as a starting point, with the desire to create an effective and exciting form of teaching.

Save the Plants that Save Lives:

Environmental Adult Education in Fiji

by Kerrie Strathy and Kesaia Tabunakawai,
WAINIMATE

Background

The Women's Association for Natural Medicinal Therapy (WAINIMATE) was established in response to concern about the loss of traditional medicine knowledge and medicinal plants in Fiji and other parts of the South Pacific. It was established by Fijian women who were participants at the 1st Pacific Regional Women's Traditional Medicine Workshop that was held in Fiji in August 1993. These women organized themselves to document and promote the use of traditional medicine, and to work on a campaign to conserve medicinal plants using the slogan *Save the Plants That Save Lives.*

The need to organize a campaign to *Save the Plants that Save Lives* was initially identified by women who participated in the 1992 Women and Forests workshop that was jointly organized by the Fiji Forestry Department's Environment Education Officer and SPACHEE's Women & Education Advisor. Participants were stimulated to learn more about traditional medicine by Nau Soko, the well known women's radio program coordinator and traditional healer who officially opened the July 1992 Workshop. Although many of the workshop participants recalled being given traditional medicines by their Grandmothers and aunties, most did not know what the medicines were for, what plants were used, or how the medicines were prepared. They decided to carry out follow-up activities to regain and share this knowledge.

The Forestry Department's Environment Education Unit and SPACHEE's Women & Education Advisor continued to carry out workshops for women living in all four Divisions of Fiji to look at issues related to the documentation of traditional knowledge and the conservation of medicinal plants. These follow-up activities ultimately resulted in the formation of WAINIMATE which has subsequently played a lead role in providing opportunities for women to be involved in experiential traditional medicine workshops. WAINIMATE's workshops are designed for 20 to 25 women, but often have more than 30 participants given the interest that women (and men) have in regaining knowledge about traditional medicine. Western medicines are inaccessible and or increasingly unaffordable to a large number of Fiji's residents who continue to lead a subsistence lifestyle on remote islands and interior villages of the two larger islands. (Note: Fiji is made up of approximately 300 islands, and has a total population of 780,000 people).

Typical workshop participants include healers, village health workers and other women who are interested in traditional medicine. Since workshops are usually held in villages, men are often seated in a corner of the meeting hall or just outside the meeting venue so that they can also be involved in learning about traditional medicine. Participants organize displays and demonstrations for other community members during the workshop, and usually end the workshop by bringing these displays to the nearest major centre for an official closing and the presentation of certificates.

Although WAINIMATE carries out its programs primarily in Fiji, it has also been instrumental in organizing regional gatherings to encourage women in other Pacific islands to become involved in the campaign to *Save the Plants That Save Lives*. The official announcement that WAINIMATE was registered as a Charitable Trust in fact came on World Health Day (April 7, 1995) during the 2nd Pacific Regional Traditional Medicine Workshop that members were involved in organizing. In September 1996, WAINIMATE members and Sister Mary Rita, a healer from Solomon Islands who had been involved in the two regional workshops, helped to organize and facilitate the Traditional medicine Consultation & Demonstrations which were part of the South Pacific Arts Festival in Apia, Western Samoa.

Values & Principles

In Fiji, as in other parts of the South Pacific and around the world, women play a major role in the provision of health care within their families and communities. As such they have a respect for the forest resources that are frequently used to make traditional medicines. Women are dependent upon forests for many other items required for daily living, including many wild foods and craft materials that they routinely obtain from their forests.

Increasingly, however, as the need for cash increases, there is a tendency to view the forest as a source of timber or quick cash. Little attention is given to the other products obtained from the forest although a study carried out in the Solomon Islands has estimated that the average subsistence family uses approximately $7,000 worth of products from the forest each year. There is a need, therefore, to return to some of the basic values and principles held by a forest culture that respects the forest for the wide range of life-giving products it offers.

Description of the Program

The campaign to *Save the Plants That Save Lives* has involved public awareness activities as will as residential workshops for women. Public awareness activities to promote concern for the documentation of traditional medicinal knowledge and the conservation of medicinal plants have included the production of posters (in English and in Fijian) as well as printing of leaflets, T-shirts and *sulus* (known as sarongs, wrappers and lavalavas in other parts of the world). We have organized coverage of our activities by radio stations and newspapers, and have produced three videos for use in our workshops. In mid-1996 we started to produce our own newsletter to enable

members and others to know more about our ongoing educational programs and public awareness campaign.

A wide range of educational programs and workshops have been organized to involve more women (and men) in our efforts to conserve medicinal plants. Women who were at the 1992 and 1993 workshops became resource persons at subsequent divisional workshops along with the Forestry Department and SPACHEE staff. Participants at the Divisional workshops have subsequently organized follow-up workshops for other women in their own Divisions and many are helping to facilitate the experiential workshops as well.

Field visit to identify plants in WAINIMATE's first traditional medicine handbook

Workshops have utilized a wide variety of methods and processes to provide some basic information to the participants, but more importantly, to enable them to realise that they have a lot of useful information about traditional medicine and medicinal plants based on their past experience. We have used presentations and our videos–especially our most recent one that was produced in Fijian–to introduce our campaign. Participants are the engaged in participatory and experiential methodologies to identify medicinal plants and learn how to prepare and administer traditional medicines. In all of our workshops, women who are healers come to recognize and value their knowledge about medicinal plants, and to share their concerns about the declining availability of medicinal plants.

Outcomes

WAINIMATE and past organizers of the Women & Forests work in Fiji. have relied to a large extent on participant observation methodologies to assess their work. This involves being responsive to the needs of the participants (learners) during the program. It also involves providing ongoing encouragement to enable past participants to carry out follow-up plans, especially the organizing of subsequent workshops and village visits to involve more women in the campaign to *Save the Plants That Save Lives*. Overall reaction to the program has been very encouraging and many follow-up activities are being carried out by past workshop participants.

As a result of our workshops and public awareness activities, we have seen a growing interest in the documentation and use of traditional medicine in Fiji and other parts of the South Pacific. Women who used to refer to themselves as 'housewives' now refer to themselves as healers and community workers, and are in the final stages of preparing a traditional medicine handbook for publication. Local WAINIMATE groups have been organized in all Divisions of Fiji to provide more learning

opportunities for other women and their families. These groups have also begun work on five demonstration gardens as a means of assisting others to identify medicinal plants.

Nursing sisters in Levuka have seen a noticeable decline in visits to the health centre as a result of increasing traditional medicine activities and training on the island of Ovalau. The Ministry of Health is very supportive and is encouraging the publication of the traditional medicine handbook. Others are encouraged by the increasing concern about the conservation of Fiji's declining forest resources. Undoubtedly, continuing work on the campaign to *Save the Plants that Save Lives* will result in the identification of rich medicinal plant reserves, and the subsequent conservation of these areas as we continue to work towards Affordable Heath for All by the Year 2000.

Traditional healers in Kiribati became organized as a result of the inclusion of participants from Kiribati in the 2nd Pacific Regional Women's Traditional Medicine Workshop. Healers in Western Samoa decided to form an association with encouragement provided by WAINIMATE members who were in Western Samoa for the Traditional Medicine Consultation & Displays as part of the South Pacific Arts Festival. WAINIMATE members are working closely with Sister Mary Rita from Solomon Islands to organize a traditional medicine workshop there in 1997 with a view to assisting with the establishment of another healers' association.

WAINIMATE members are also organizing the 3rd Regional Women's Traditional Medicine Workshop. Immediately following the Workshop, they will be involved in traditional medicine demonstrations and displays at the Pacific Science Congress being held at the University of the South Pacific. The purpose of these displays and demonstrations is to show that Pacific women have an understanding of their environment and natural science which must be preserved for the continued health and well-being of future generations.

The Women's Community Health and Organizational Development Project

Pátzcuaro Lake Basin, Mexico

by Joaquin Esteva
CESE, Mexico

Background

The main subjects of this project are groups of women from rural lakefront communities in Lake Pátzcuaro. The promoters of this project are personnel from the CESE and most of them are young women who come from the same rural communities where the project is being carried out. At the present time nine communities are involved in intensive action.

The training process of these promoters is combined in two large areas: appropriation of the strategy and educational methods and social organization, on one hand; and the theme contents that are reached through formative processes and action, on the other. The promoters are trained to carry out the project activities and their training is complemented with courses, workshops and seminars, both within and outside the project. In order to better understand the training process, the following will present the general characteristics of the project:

Project Objectives

The community project came into being as part of the regional and communal program of the CESE with the following strategic objectives:

1. To promote from the sphere of work with women the process of regional sustainable development.
2. To promote organizational processes, communal and regional, with the participation of Purépecha women.
3. To provide a space and formative process that permit women of the region to critically analyze their reality and know their rights.

Consequently, the project incorporates several factors:

- The strategic relevance of grassroots work directed toward the family, complementing regional organizational projects supported by the CESE.
- The ethical political obligation toward disadvantaged sectors of society. Rural women are in a more oppressive situation than their male counterparts.

- The impact of the feminist movement in demonstrating the relevance of woman's role in social and environmental transformation. The environmental paradigm, by integrating the gender proposal, takes into account the relationship between man and woman as a central element in the analysis of social relationships and those with nature.

Framework

Indigenous and non-indigenous women in rural communities near Pátzcuaro occupy, as in the entire country, the last link in a chain of dominance. The incidence of violence against women in the Pátzcuaro region is horrifying. It was found in interviews with 500 women that only 12 had not been raped, mainly by relatives (brother-in-laws) or ritually (godfathers or father-in-laws). In literally all the cases, no one filed criminal charges.

Male migration has also added to women's workload, responsibility in the home, productive labour and the large number of children due to religious prejudices or ignorance about their reproductive cycles and pregnancy prevention methods. Women's cosmic-vision is in part related to the theological structure of the Catholic Church, and to ingenious materialistic interpretations, that are evidenced in their ideas and explanations about disease and health. In this ideological context, women assume that inferiority is their destiny and its modification is unimaginable.

Women and the Environmental Problem

Even though it is quite certain that we all suffer the consequences of environmental deterioration, it is necessary to point out that because of their subordinate condition, women are the most affected.

The consequences are reflected in daily practices, making their workload heavier: the scarcity of firewood make it necessary to cover larger distances; now women must travel some distance in order to obtain basic food products for their families; women no longer grow fruits and vegetables in home gardens, because it is too difficult to control pests and food is cheaper in the market. This implies that their travelling to the nearest urban centres is to obtain food.

Because of the increase in the consumption of junk food, which because of efficient advertising and large demand, reaches even distant communities at a low cost, there have been serious problems of malnutrition. Add contaminated water to this, and we can find some of the key factors that have generated the serious health problems detected in the communities. Women, in their daily life, have more direct contact with this situation, so any action put into practice to solve these problems is directly related to them.

In the past, there was a different conception of the relationship that should exist between humans and nature: a relationship of balance. This conception is still valid in indigenous communities; however, with successive generations it is losing its hold because of the growing influence of modernism and post-modernism on their traditions, customs, and beliefs.

Strategy

The strategy of this project has evolved over its seven years. We can distinguish the following moments and central aspects:

- *Institutional Setup*

In this stage the project team elaborated the basic features of the project. At the same time, funding was obtained from the Dutch agency HIVOS in order to begin the project with the participation of two professional women.

- *Initial contact with community groups*

Previous work in the region allowed the project team to establish contact rapidly with groups of craftswomen in two communities. They participated in activities for the sales of their products. However, since the problem of sales was relatively solved, other more urgent areas were perceived as important for support by the CESE project.

- *Women's Self-Diagnosis*

In answer to the women's interest, a self-diagnosis was carried out which showed that health questions were of priority because of the high cost of medicines and the negative side effects of allopathic medicine in the treatment of diseases caused by microbes.

- *Health Project*

Because of the results of the diagnosis, the women initiated activities based on health from a curative and preventive point of view. The first step in each group was to redeem the native herbal medicine, which in turn was able to revitalize the traditional knowledge about plants and their medicinal properties.

Women do research through conversations, visits to the countryside, and interviews with older women. The learning process doesn't end with the redemption of traditional knowledge but incorporates new techniques such as the production of extracts and micro-doses. The research also includes a biological dimension with the participation of botanists who collaborate in the scientific classification of the plants in order to extend knowledge of their use outside of the region. In this way, a dialogue of knowledge between the community and the researchers is maintained.

- *Basic Supply Project*

Since nutrition is a relevant aspect in health, and because of the high prices of basic food needs in the home, work has been carried out with women groups in order to train them to plan basic balanced diets mainly based on the recovery and even more extended use of regional products. At the same time, the women have been organizing themselves in order to obtain basic supplies. Different

methods of organization are opted for according to the characteristics and desires of each group. The one that has proved most efficient is that in which the groups make a list of what they want and it is distributed to each person every two weeks. Another model is a group store, but in general the groups prefer to maintain a system with less risk and one that doesn't change their daily life patterns too much (a store implies a conjunction of new financial, organizational and administrative responsibilities). Supply responsibility is now in the hands of a community store run by fishermen. They distribute basic food products to the community women's groups.

• *Ecology Techniques*

The women's groups have been assiduous participants in the process of regional organization in the community, principally through their participation in assemblies and activities of the Regional Organization Against Pollution in Lake Pátzcuaro (ORCA). In regional working plans, specific tasks have been pointed out to combat the deforestation and to procure environmental healing. Women's groups have assumed an important role in adapting technologies, particularly those related to domestic space. For example, of the 500 improved mud stoves that save up to 50% of firewood installed in the region, a large percentage have been built with the direct participation of women. In fact, the transmission of this ecological technique has been horizontal, in other words, from woman to woman.

• *Fortifying Inter Groups Relationship*

Among the activities that have been maintained during this project there is a dialogue and evaluation of the advances of the group projects. These inter-groups sessions are held every three months and they point toward the creation of a permanent regional women's forum and the conformation of a regional women's organization.

• *Gender Situation*

An explicit analysis of the relationship between man and woman (husband-wife, father-daughter) is a subject that has required a long process of sensitization. The strategy of the project has maintained an adequate rhythm so that women can express their doubts about marital problems, a thing they are extremely reluctant to do in public. The trust gained by the project team through efficient health training, advances in the basic supplies project and the relationship of patients with the project head (a doctor), has made it possible to talk about "offensive" subjects at the group meetings.

Reproductive health has elements with which this line of work can be initiated but for this, in reflection workshops, daughters-in-law must be separated from their mothers-in-law. When the sons are absent, their mothers are in control, and in many cases they treat their daughters-in-law

very severely, clearly demonstrating that the status of mother-in-law is the accumulation of power in a woman's life. Domination among women is then the first step to be discussed with both generational groups. This process advances as women initially understand their own body and it opens up their analysis of women's public and private relationships. In this way, a biological and cultural vision of men and women relationships to each other and to nature, can be integrated.

Conclusion

We conclude by affirming that any sustainable development process should include in their field of reflection and action, the transformation of the present relationship between men and women.

The construction of a sustainable society without full participation of women is doomed to failure because it lacks the ethical, political and cultural basis that can transform the dominant relationship between society and nature.

From a pragmatic point of view, women's participation is necessary in order to regain their rights and to open up the possibility of global decision making in politics and practices for the construction of sustainable communities.

Planting the Seed:
Developing a Sectoral Environmental Education Program in the Philippines

José Roberto Guevara,
Centre for Environmental Concerns (CEC), the Philippines

Background

In 1991, the Centre for Environmental Concerns–Philippines, a non-governmental organization, initiated a curriculum development program with the major sectoral federations in the Philippines, called the SEED Program (Sectoral Environmental Education Program). The general objectives of the Program were to build upon curricular and pedagogical experiences towards a grassroots environmental education curriculum, and to evolve mechanisms for sustained environmental action. More specifically, the Program aimed at strengthening the capability of the regional networks in conducting environmental campaigns and to gather baseline information that could support these campaigns.

The Program worked with the national or regional federations of the following groups: indigenous peoples, peasants, women, urban poor, fisherfolk and agricultural workers. While logging and energy were the major national environmental issues in the early 1990s, some of these sectors had specific environmental concerns which greatly influenced the content of the curriculum.

Indigenous peoples did not see environment as a separate issue from their demands for self-determination and indigenous peoples' rights. Peasants have long been aware of the environmental damage caused by the technology package introduced by the Green Revolution and were demanding genuine land reform and more sustainable agricultural practices. Women were concerned with issues of health and the environment, while addressing their own demands for women's rights and empowerment.

The urban poor sector needed to be convinced that the resolution of environmental issues is not equivalent to the eradication of their sector, but rather meant having food, shelter and a healthy environment. Fisherfolk were more advanced in that they were already exploring issues of community-based coastal resource management. And finally, the labour sector focused on health risks and the environmental damage by transnational corporations of agra-industrial areas.

Environmental education was an attempt to help establish the links between environmental concerns and their own sectoral issues, not to project environmental issues as a separate concern that needed their attention. However, this was not an easy task. Much of the emphasis of environmental campaigns was previously limited to the "Clean and Green" types which were merely concerned with the bio-physical environment. Therefore environmental education had to be seen as one strategy in the whole range of environmental work.

RENEW: The Seed Workshop

The initial working module of the SEED Program was the Restoration Ecology Workshop (RENEW) an Awareness to Environmental Action Workshop developed by Centre for Environmental Concerns (CEC) in 1990. RENEW was based on the conviction that it is not enough for people to know what is happening to our environment, they need to do something about it. However, these actions must be based on a deeper understanding of the cause, the effects and the mechanism of the observed environmental problem. Therefore, it was decided that the workshop would equip people with a scientific understanding of our environment.

The core concept of the workshop is *All components of the environment are interdependent to each other*. This, however, is not limited to the bio-physical components of the environment but recognizes that environmental problems are deeply rooted in our socio-economic, political and cultural situation, at the local, national and global levels. It was the hope that this deeper awareness and more holistic understanding of the problem would help the participants to identify concrete environmental actions, individually and collectively.

RENEW is a participatory and creative approach to education. It is participatory because it provides a venue and uses an approach where the participants can share their experiences and together learn about how our environment works and what we can do about the current situation. The creative methods enhance the process of sharing and learning and contribute to developing in the participants a creative outlook in developing solutions to address the problems we face.

The core strategy of RENEW and the SEED Program was the training of local and sectoral educators to facilitate the development of sector-based modules and decentralize the task of implementing these environmental education modules.

Lessons: Seeds borne from experience

Most of the initial sector-based modules that were developed merely added a specific topic, of interest to the sector, to the current RENEW module. Hence it was called a RENEW Plus workshop. For example, Sustainable Agriculture was included in the peasant module, the issue of Women and Environment was explored by the women's groups, and the call for Genuine Aquatic Reform was emphasized by the fisherfolk.

After this initial series of RENEW Plus workshops, an attempt was made to integrate some of the basic environmental concepts and discussions into existing

sectoral education modules, such as Women's Reproductive Rights, Occupational Health and Safety and Genuine Trade Unionism. This was seen as a better approach since it did not separate environmental concerns from the current sectoral concerns, an application of the concept of interrelationships between issues that RENEW wanted to impart.

Our learning experience with our indigenous peoples is worth mentioning. During the sectoral RENEW workshop conducted with the leaders of the various indigenous groups all over the country, two major issues were raised. The first was that the environment and the lives of indigenous peoples are one and the same, hence they did not see the need to study about the environment in a workshop. The second concerns what we then considered a basic concept in ecology – Ecosystem Structure – that the environment is composed of living and non-living things. To our indigenous peoples (and later on, to the farmers and fisherfolks) everything in our environment is living. The soil is living and the ocean is alive. This point-of-view is valid, given their framework that all things that are capable of supporting life are living.

This resulted in the need to review some of the basic concepts in RENEW. If the Ecosystem Concept – that all components of the environment are interrelated and interdependent – is considered as the core concept of RENEW, then there is no need to distinguish between living and non-living things.

As a result of this experience, we have decided to conduct a study on Indigenous Knowledge Systems in Ecology. An initial research was completed in 1996.

In 1993, CEC conducted a national participatory evaluation of the RENEW module. The following lessons were distilled from the experiences of our community and sectoral education programs:

- The basic concepts of environmental science could be learned by anyone.
- These basic concepts could be drawn from real life experiences.
- The environmentalists' milieu is the bio-physical, social, cultural, economic and political environments.
- Environmental education modules must correspond to the local ecology and the particular target sector.
- Form/method is as important as content and context.
- The education module/curriculum must be progressively contextualized.

Seeds for the future

In October 1996, a workshop was conducted with the sectoral federation leaders to review the current efforts in environmental education and research work and plan for the future. A major recommendation identified by the workshop was the need to sharpen the analysis of environmental issues to establish its interrelationship with the basic problems of Philippine society.

It is clear that the current push by the Philippine government to achieve at all costs, the status of a Newly Industrialized Country by the year 2000, will place extreme

pressure on our people and our environment. The massive conversion of agricultural land to industrial areas, residential subdivisions and golf courses, the reclamation of coastal areas for industrial parks, and the opening of the mining industry to 100% foreign-owned corporations are just some of the major problems that were shared by the leaders.

At CEC, we have started to explore a new realm of environmental education work through our involvement in specific environmental campaigns, such as the national campaign against the Mining Act of 1995. While we recognize that workshops, such as RENEW and the sector-based workshops will continue to have a niche in our environmental education programs, we need to develop education programs that can respond to urgent and very specific environmental issues at the national level.

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Sustainable Solutions to Environmental Problems:

Tribal Habitation and Community-based Environmental Adult Education in India

By Dr. Arttyananda Pradhan and Ku. Latika Mishra
Post Graduate Department of Education
D.A.V. College, India

Background

This case study focuses on a small tribal habitation called 'Guntaguda' which is situated in Koraput district of Orissa state in India. The 25 families of the habitation are disadvantaged through illiteracy, poverty, lack of electricity and good communication facilities, etc. A study of the profile of the habitation indicated that none of the 52 adult members (ages range from 15 and up) are literate. A narrow stream very close to the habitation is the only source of water for all purposes, e.g. drinking, bathing, washing clothes. The habitation is surrounded by hills and waste lands. The occupation of 13 families is agriculture while nine other families depend on daily wages from outside sources. None of the families have savings in terms of money.

The study was conducted with the following major objectives:

a. To assess the needs and resources of the habitation;

b. To identify the environmental problems of the habitation;

c. To design a community-based environmental education programme for the habitation in view of its needs and resources; and

d. To assess the impact of a community-based environmental adult education program.

Design of the Study

The study period covers three months, from October to December 1996. The data for the study regarding the needs, resources and environmental problems of the community was collected through interviews with community leaders and heads of families. Photographs were taken to ensure that the environmental problems of the community were captured correctly.

Environmental Issues

The major environmental issues of the habitation were identified as: lack of a drainage system, garbage disposal, deforestation and unsafe drinking water. The drinking water problem was identified as the most urgent problem of the habitation, as it was found that people were using the water from the same place for drinking, bathing and cooking purposes. In addition, the narrow stream of water was used for watering the domestic animals.

Values and Purposes

After identification of the key environmental problems, such as drinking water contamination, informal discussions were held with members of the community to create two different sites in the stream for use. One of the sites was for drinking water and cooking purposes and the other for bathing, etc. However, people expressed indifference to this with the plea that they had no time to work, no money to spend for the purpose, and they felt that it was the duty of the government to provide safe drinking water to their village as it is provided to other villages.

The source of water is the same for both drinking and washing

Description of the Problem

A meeting of the beneficiary community members was convened and a detailed discussion resulted regarding the need for safe, drinking water and self-reliance.

Village people meet to discuss solutions to the drinking water problem

A plan to address the problem was developed along the following lines:

a. Identification of long-term needs of the habitation;
b. Identification of immediate needs of the habitation;
c. Development of strategies and activities towards the solution of the problem;
d. Identification of those persons responsible and their roles;
e. Identification of time lines.

Motivation was the primary goal of the investigators during the implementation of the program.

Outcomes

The impact of the program was assessed by interviewing those involved in the project and through observation during the implementation and at the conclusion. Photographs were taken to record the many changes that were took place during the program.

The drinking water problem was solved by the beneficiaries to the extent possible for them at the time. The community members were enthusiastic about the program's implementation and were ready to begin solving their own problems at the grassroots level rather than waiting for the government to do so.

Village people arranging a separate source of drinking water

Community Participation and Education:

Biogas Extension in Urban and Rural India

by Zareen Myles, India

Background

The Women's Action For Development (WAFD) is a development organization that was established in 1978 in New Delhi, India. It promotes and implements community development programs at the grassroots level with a special focus on women, children and youth in the urban, suburban and rural areas of India. Since its formation, the WAFD had been involved in the experimentation and demonstration of low-cost Renewable Energy Technologies (RETS). The primary focus of the first decade of WAFD's work was experimenting with and demonstrating appropriate Solar Cooker designs at its various centres in Delhi.

Obstacles

Even though WAFD was able to demonstrate successfully the technical aspects of these RET gadgets, there were a number of obstacles to their use that were encountered:

1. Inadequate space in slum houses
2. Too much dependence of cookers on weather conditions
3. Night cooking
4. Comparatively easier availability of dung cakes, kerosene and natural gas filled cylinders for cooking

As a result, the WAFD decided to drop the idea of implementation of a biogas progam in semi-urban villages in Delhi. However, the first plant set up had served its purpose of training, demonstration and building awareness of the process. This was a great learning experience for WAFD, its extension and field staff. As a result of this experience WAFD decided to wait until they had begun their projects in villages to once again implement biogas technology.

Biogas Promotion and Extension in the Villages of Bharatpur District

The Bharatpur District, about 200 kms from Delhi, is a region with a dry climate. The land is semi-arid and mainly has brackish ground water. Therefore, the drinkable water supply is only available from very low depths.

As a result of the experience gained from the semi-urban village project in Delhi, WAFD were confident regarding introducing low cost rural household biogas plants in the Bharatpur District. Also at this time a 20% cheaper and sturdier model, The Deenbandhu, was approved by the Ministry of Non-Conventional Energy Sources (MNES).

In order to understand the current use of cooking energy and other chores performed by the village women in the Bharatpur District, a survey was completed by the WAFD Field Staff. The women in the villages of the Bharatpur district had been cooking on open fires for centuries using either fuelwood or cow dung cakes. They were used to smoke-filled cooking areas, blackened cooking vessels and their eyes filled with tears. It was also taken as a woman's fate that from childhood, little girls started helping their mothers to collect firewood, make cow dung cakes, and scrubbing the blackened utensils until they sparkled again. All this was just one part of women's daily busy schedules which began at 4:00 a.m. and did not end until 11:00 p.m.

After talking to the women about biogas they were the first ones to readily accept the biogas plant in principle, as it would reduce part of their drudgery and save time from their daily chores, thus enabling them to get some rest. However, it was the responsibility of the menfolk to make the final decision on investing in it and therefore they also needed to be convinced.

The WAFD began to conduct a training program on the construction techniques of the Dembandhu Model Biogas Plant for rural masons in Bharatpur District. It was with great difficulty and perseverance that the WAFD was finally able to put up three demonstration plants. The first day the gas was commissioned and used from these three plants, people were delighted. The news spread to nearby villages about the number of benefits derived by the men and womenfolk. More requests came in for training in order to construct further plants. The demand for plants grew and to date around 200 Deenbandhu Plants have been constructed. Now when the WAFD's women social workers ask these rural women what difference they find in their lives after the biogas plants were installed in their houses, the answer is *now we have time to rest and sleep in the afternoon.*

Unfortunately, during the last year there have been some major financial set-backs: subsidies have been withdrawn, the cost of building materials has risen, and the Brick Kilns were closed due to environmental and ecological considerations. This increased the cost of materials even more. However, another biogas plant model is now being built, the Chramik Bandhu Model, which is 10-15% cheaper, and of environmentally-sound technology as the bricks have been replaced with bamboo building materials.

Values and Description of Work

As people began to understand the pros and cons of modern technologies based on high-cost exploitative inputs, they felt a strong need to re-learn the value and wisdom

of their forefathers and take the best from the scientific knowledge by systematically and gradually undertaking sustainable agricultural practices. Towards this end, the WAFD and the villagers have felt the need for a value-based education to apply scientific knowledge and blend it appropriately with their age-old traditional farming system in order to improve the quality of life of the rural people.

The philosophy of WAFD is that human beings are at the centre in the micro-eco system, as well as being partners and principal stake-holders. When the primary stake-holder starts a process of over-exploitation, the result is destruction of this healthy relationship and the close inter-dependence cycle (loop) of harmonious coexistence. A chain reaction begins, which leads to depletion of soil, water, and the biomass. This in turn causes a heavy toll on all the living and non-living things, as well as the life support system itself, thus leading to the misery and disaster of human beings themselves. The WAFD has observed that the basic respect for nature is still there among the communities and they understand this philosophy. For example, since ancient times, the villagers in India have been calling "cow" the "gau mata" or "mother". The cow gives milk and butter; the manure is used for cooking, energy and plastering of village homes; male cattle are used as draught animals for almost all the agricultural operations as well as for village transport. Even after death, cows' skins are used for making leather goods. Thus the whole village economy and village self-reliance revolves around the cow, the value of which has been known to the villagers for centuries.

WAFD has realized that the biogas plant can also be at the centre of the village or farm eco-system and links all the components and sub-components. A close loop (cycle) is formed as output from one unit or sub-unit becomes the input for the other. This also makes the entire process regenerative, thus contributing to the healthy and sustainable environment.

Methodology used by WAFD to translate the biogas based sustainable micro-eco-System into practice at the grassroots level

As a first step WAFD organized a participatory workshop for the groups of men and women farmers. Through group discussions and role-playing the participants were encouraged to share their knowledge and practical experiences.

Informal meetings and discussions with the villagers informed men and women about the use of biogas-digested slurry in place of chemical fertilizers. The WAFD has recently identified, trained and selected some of the participating farmers who were more open and willing to go ahead with implementation of a pilot demonstration/ training/study project on their farm land. The project has now been launched and WAFD field staff are closely monitoring and guiding as well as providing technical assistance to the farmers when required. All the data and processes will be systematically recorded and documented for future evaluation, learning and making corrections where necessary.

Conclusions

When WAFD first became involved about four years ago in the training, promotion and extension of low-cost, rural household biogas plants, no one (men and women) believed that they would work. In Bharatapur District, the government implemented biogas plants had all failed. This was due to one or several of the following reasons: (a) the technology was wrong; (b) design dimensions used were not correct; (c) the biogas program was not correctly implemented; (d) the people were not motivated effectively and the program was not supported by sound educational components, e.g. proper feeding, maintenance, daily care and servicing aspects as well as the socio-economic value of acceptance of biogas as an effective tool for sustainable farming systems.

The WAFD has found the most effective way of educating people is participatory workshops with 25 to 35 participants. This method of education creates awareness and encourages people to interact with each other, learn from their own practical experiences and and share information, while WAFD staff play the role of facilitators. Role-playing and songs are also used very effectively by WAFD staff to motivate participants and to provide appropriate information. After these workshops, people are encouraged to go back to their villages and share their learning with others. At home, they will also use role-playing, participatory meetings and discussion sessions to ensure that their learning is being passed on to the rest of their villagers.

Subsidies have made people dependent on government and they feel it is the role of government or the local organizations to build the plant. Though many people understand the benefit and importance of biogas plants, they feel that the government should provide subsidies. During the financial year 1995-96, the Rajasthan State Government withdrew additional state subsidy. Although the people's share has increased substantially as a result, the WAFD is happy that in this year we still have 25 farmers motivated to build plants, while contributing a higher share of the cost.

All of this has been encouraging to WAFD and supports the belief that once people are educated thoroughly and understand the importance of their individual role and the contribution they can make in the preservation of their environment, they will willingly come forward to construct plants even without the subsidy. When people of the community realize and understand that they are the primary stake-holders in their own development and the preservation of environment, and the biogas is a means of achieving this goal, then it will become part of their life and they will come forward on their own to construct biogas plants.

Rainforest Interpretation:

Environmental Adult Learning in Malaysia

By the Forest Research Centre, Malaysia

Background

The Rainforest Interpretation Centre (RIC) is a conservation education facility located at the edge of the Kabili-Sepilok Forest Reserve and managed by the Sabah Forestry Department. The Centre was constructed in 1995. Adjacent to the IRC is a rainforest trail stretching 800 metres. There are two main aims behind the Centre:

1. To help people to become more aware of the rainforest, its importance to their lives and the consequences of its destruction;
2. To help people to change their attitude and behaviour towards the rainforest and the environment as a whole.

The Centre and the trail are designed to appeal to a range of audiences including tourists, teachers and students, visiting researchers, tour guides and the general public. The RIC exhibition covers a wide variety of aspects of the rainforest such as its charateristics and the problems it faces from human begins. It also houses a collection of artifact displays ranging fgrom an elephant's skull to traditional handicrafts made from forest products. The adjacent Rainforest Trail is guided by a number of information boards which indicate some of the rainforest plants that can be seen, as well as more general information.

Objectives

The Centre's Environmental Education Program is being implemented in order to increase the effective use of the RIC facilities by selected groups. The program is being developed in line with the Malaysian Ministry of Education's agreed position of including environmental education across the curriculum. The objectives are:

- To develop public awareness and environmental interpretation programs for the general public and tourists;
- To develop a coordinated and comprehensive environmental education program for in-service and pre-service teachers and teacher educators;
- To organize and facilitate coordinated and comprehensive environmental education programs for primary and secondary school groups.

In addition to the above, there are plans to expand the target groups to include industry personnel, guides and scout groups, etc.

Responsibilities of the Environmental Education (EE) Advisor

The main responsibility for the development of the EE programs is with the technical advisor. The duties include:

- responsibility for the management planning and implemention of the schools and teacher education component of the RIC Nature Education Program
- organization and facilitation of programs for visiting school groups
- conducting and faciliting pre- and post visit work with schools
- developing educaitonal resources
- conducting environmental education workshops for teachers

Program Components

The program is divided into five key areas:

1. School Education Program: This component aims to plan and conduct EE programs for secondary students.

2. Teacher Education Programs: This component aims to train teachers to implement EE and enable them to plan and conduct their own EE programs at the RIC. The specific objectives are:

- to develop a training manual
- to facilitate regular half-day environmental education workshops
- each year, to conduct a week-long residential workshop on environmental education and sustainable forest management

3. Public Awareness Program: The overall goal of this component is to produce quality intepretive materials and educational programs for the general public. The specific objectives include:

- production of an illustrated Rainforest Trail Guide
- ongoing evaluation and development of the exhibition space
- production of brochures and information sheets on selected topics of forest conservation and management
- outreach and networking
- organization of celebrations around events such as World Environment Day and World Forestry Day
- production of promotional information kits on sustainable forest management and the RIC

4. Environmental Education Resource Collection: The aim of this component is to establish a resource base for the sustainability of the EE program. Specific objectives include:

- subscribing to relevant journals and magazines
- maintaining a network of EE contacts and resource people
- establishing and maintaining a collection of EE materials.

5. *Administration and training*: The primary elements of this work is to conduct a training program for local counterparts in EE and environmental interpretation and management of the EE Committee, including teachers and the public.

Les Activités d'information, éducation et communication
dans les programmes de l'amicale des groupements paysans de Foundiougne (AGSF)

by Angelle Fatou Sarr
Senegal

The Foundiougne Association of Farming Organizations (AGSF) was created in 1987 to promote the social and economic development of Foundiogne, a peanut and milet farming region. The association is composed of about a hundred village organizations divided into four regions, sharing eco-geographical characteristics: Log, Diognick, Saloum and Laghem. These regions also share low literacy rates, insufficient supply of food, water and information, all which have led to a massive, rural exodus. The Assocation has been working to train people through the village organizations, in the following diverse subjects: agriculture, water provision, new sources of energy, community health education, and environmental protection. The emphasis is on education, information and the sensitization of the people, particularly women, whose access to education is limited by factors, such as traditions and the division of labour between men and women.

L'AGSF est une organisation paysane créée en 1987 pour promouvoir le développement social et economique de Foundiougne, une région où l'activité économique est dominée par l'agriculture pluviale (arachide et milet). Elle se compose d'une centaine de groupements villageois répartis dans quatre regions naturelles présentant les mêmes caractéristiques ecogéographiques : le Log, le Diognick, le Saloum et le Laghem. Ces régions ont en commun la faiblesse des taux d'alphabetisation, le manque d'information des populations, d'alimentation en eau et en combustibles domestiques, ce qui entraîne un exode rural massif des populations.

L'association oeuvre depuis 1987 à l'encadrement des populations de la zone à travers les groupements villageois. Cet encadrement concerne des domaines aussi divers que l'agriculture, l'hydraulique villageoise, l'énérgie, l'éducation sanitaire, la protection de la nature. Dans la réalisation de ces activités, l'accent est mis sur l'éducation, l'information et la sensibilisation des populations, notamment les femmes

dont l'accès à l'éducation est très limité du fait de plusieurs facteurs (division du travail entre hommes et femmes, traditions, etc.).

Hydraulique villageoise

L'approvisionnement des populations de la zone en eau pour usage domestique et pour le bétail est assuré principalement à partir de puits et de forages motorisés. La gestion des forages est confiée depuis plusieurs annees aux populations elles mêmes dans le cadre de la décentralisation administrative de 1972. Mais la gestion de ces ouvrages nécessite un certain nombre de capacités en matière de gestion administrative et financière que les populations n'ont pas toujours, en raison de leur faible niveau d'instruction. C'est pour cette raison que l'Amicale s'est investie dans l'encadrement des populations afin de les amener à constituer des comités de gestion. Les formations assurées dans ce domaine, concerne la gestion comptable, la tarification de l'eau, l'organisation de l'entretien et la maintenance des équipements de pompage.

Les Comités ainsi constitués assurent la prise en charge de l'exploitation des ouvrages sans l'intervention d'acteurs externes, sauf dans le domaine de la maintenance et la reparation des équipements en cas de panne.

Santé communautaire

L'assistance fournie par l'Amicale dans ce domaine, concerne aussi bien la gestion administrative et financière que les activités de préventions des maladies endemiques. C'est ainsi que des campagnes d'information et de sensibilisation sont regulièrement organisées au profit des groupements sur l'éducation sanitaire de base (propreté et hygiène, chloroquinisation, vaccination, etc.). Ces campagnes sont menées par des moniteurs selon des plannings arrêtés d'un commun accord avec les membres des groupements. Les femmes constituent les principales cibles pour ces activités compte tenu de leur rôle dans ces sociétés.

Ces activités visent à combler le déficit de couverture sanitaire par les postes de santé qui, dans la zone, n'existent que dans les plus grands localités.

Protection de la nature

Du fait de la culture extensive de l'arachide et la coupe abusive de bois à des fins énergétiques depuis de nombreuses années, la zone connaît des problèmes de dégradation des ressources naturelles et des sols. Il s'y ajoute une progression rapide de la salinisation des sols qui entraine également un recul des formations forestières le long de l'estuaire du fleuve Saloum et la progression des tannes. Les activités de formation initiées dans ce domaine concernent la contruction et la vulgarisation de foyers améliorés pour l'utilisation plus rationnelle des combustibles ligneux. L'activité de reboisement, qui associe les femmes et les jeunes (pepinières), fait l'objet également de formation et d'encadrement.

Depuis l'adoption des nouveaux textes législatifs relatifs à une plus grande decentralisation des pouvoirs de décision des populations locales (régionalisation), et

l'accent est mis sur l'information et la sensibilisation des élus locaux sur les nouvelles prérogatives que leur sont conferés dans ces textes, en matière de gestion des ressources naturelles.

Énérgie nouvelle et renouvelable

L'AGSF, dans le cadre d'une amélioration des conditions de vie de ses membres, s'active également dans la diffusion des systèmes photovoltaiques familiaux. Cet équipement est utilisé par les populations pour les besoins d'éclairage et d'audio visuel et vient en substitution de l'utilisation des lampes tempêtes et bougies (pour l'éclairage) et des piles sèches et accumulateurs (alimentation des radios et TV).

La formation assurée dans ce domaine concerne le volet technique, c'est à dire l'installation, l'entretien et la maintenance des équipements. Ainsi, des villageois ont réussi par le biais de l'amicale, la formation requise pour assurer un service de maintenance de proximité.

Également, une sensibilisation des populations est assurée pour leur permettre d'utiliser efficacement les équipements.

Par ailleurs l'installation des systèmes photovoltaiques familiaux dans les écoles et centres ont permis à l'organisation d'assurer par le biais de ses animateurs l'alphabétisation des femmes durant la nuit pour celle d'entre elles qui ne disposent pas de temps pendant le jour.

Pour le développement de l'activité solaire dans sa zone l'AGSF fait parti des membres fondateurs de la Fédération des organisations paysannes pour la promotion des énergies renouvelables (FOPEN).

Women as Environmental Educators in Uganda:

The Joint Energy and Environmental Projects (JEEP)

by Ruth Kiwanuka
JEEP Coordinator, Uganda

Background

In Uganda, a neighbour's problem is your problem. The creation of the Joint Energy and Environmental Projects or JEEP was stimulated by a serious drought that occurred in Ethiopia between 1981 and 1982. JEEP revolves around what founding member Sylivester Sentamu-Makumbi termed as: *A Secure Environment – Sure Future.*

JEEP is a typical, indigenous non-government organization. Its secretariat is situated in Kampala, the capital city of Uganda. It operates in the rural areas of Mpigi, Mukono, and Kampala Districts. JEEP also, on special invitation by MS-Uganda (a Danish Association for International Cooperation), works in the Masindi District.

Values and Principles

The following are the four key values or principles that guide the work of JEEP:

1. The preservation of the environment is an invaluable achievement that will be enjoyed by all people now and in future.
2. The training program has the potential to reverse the trend of youth exodus from the rural to the urban areas in search of jobs. This is because the training provides skills in appropriate technology and can create gainful employment. A trained community is an asset to our area because these people are able to address some of the development problems with an environmental understanding.
3. Trained people are able to access income through the design and sales of energy devices such as basket cookers, briquettes, stove construction, organic vegetable growing and tree-planting.
4. An improved environment leads to better soil fertility and more firewood.

Mission

JEEP's mission is to prevent environmental destruction and to foster natural resources conservation by raising public awareness, generating information, encouraging community participation through training, mobilization of resources and supporting joint efforts aimed at achieving sustainable development.

The founding members identified deforestation and soil erosion as major problems which needed a serious mission and determination.

The target groups we work with are rural farmers, mainly women and youths. Seventy are women because they are the main victims of energy crisis in Uganda, as in most of the developing countries where most of energy is obtained from wood. They are also oppressed by a culture that favours men not to do most of the domestic -donkey work!

The high rate at which trees in Uganda were disappearing made JEEP search for a stronger educational approach. This was a result of JEEP surveys which discovered that the fuel wood crisis and soil erosion were critical and that the communities have not been organized and equipped to participate and manage their own development programs. JEEP's efforts are therefore to promote community participation in development of environment sensitive strategies. This is the very issue that forced us to strengthen our educational approaches as per this case study.

Evaluation is always the first activity of JEEP. Its primary purposes are to:

a. Examine related issues to stove construction, efficiency and ease.
b. Examine the energy-issues-type of fuelwood dominantly used, and accessibility to it.
c. Examine the food related-type of fuel dominantly eaten and its preparation.
d. Gather information about tree planting, vegetable/fruit growing under organic farming, also pests attack, and remedies.

This information helped us to formulate the type of training program suitable for the target groups. We also used this opportunity to identify suitable venues for the training, participants' accommodation, classroom facilities and to get information about the availability of the needed local materials. In this way, JEEP applies the so-called person-to-person approach, which the training staff are very good at.

Further Visions

We have continued to develop vision as we work as a team. One vision was to conduct a consultative meeting at our office and we did this by inviting organizations dealing with energy conservation. Our objective was to pool together locally existing expertise, review progress and exchange experiences in stove development. This helped us to gather more information and knowledge and we could make improvements in the training program before we started.

A Close Look at our Methodology

The Theme is *Stoves and the Environment*. Our syllabus includes:

- Training in different designs of energy-saving stoves by using local materials, e.g. soil, clay and sand.
- Training in making and using alternative sources of energy, e.g. briquettes

from garbage, use of saw-dust and recycling charcoal dust to briquettes. Our courses are known as Training of Trainers (TOT).

We include a maximum of 25 people from the villages in our usual rural operational areas. We conduct our lessons inside or under tree-shades and hold general discussions which later split into small group discussion. They are usually very interesting because we apply a two-way traffic method where participants raise a lot of ideas based on their experiences. This is the time when we also pass on our experiences and "know-how".

We then demonstrate energy devices to the participants showing them the exact measures using hands and sauce pans, and the reasons why. Finally we request the participants to try making the stoves in smaller groups to ensure full participation. Our duty is now to mingle with the groups to give some technical support where necessary. The last issue on the time-table is teaching-practice sessions by the trainees, to show us how they would would address the issue with their own audiences when they go back home. This part of the program needs our input because it is a new experience in their life. We also try dramatization of the course so that they pick up what they have missed. Music and drama are very good tools for disseminating information especially to the illiterate and those who hate lectures.

Consultative Meeting

We invited organizations dealing with energy conservation to pool together locally existing expertise, review progress and exchange experiences in stove development. This helped us to gather more information and knowledge, and we improved the program even while still in preparation.

End of Course Evaluation

We always request that participants evaluate the course at the conclusion. Normally, we distribute questionnaires about the JEEP methodologies, the meals provided and accommodation. We take into account the analysis of the evaluation and this helps JEEP and the sponsors to improve on the course standard and gives a clear picture of who funds JEEP'S Training Program.

Back to the Office

When we come back to our office, we evaluate ourselves by looking at the questionnaires, identify weak and strong points, so that we improve on and maintain the standard of our courses. Report writing and preparations or monitoring activities are also done. The monitoring activity begins six weeks after each course.

Problems Encountered

Our work has involved a lot of travel from the very beginning and transportation to the operational areas has proved to be the major constraint. It costs us a great deal to transport staff, materials and residential courses. When its comes to monitoring, it becomes an even greater problem. We have to hire taxis to be able to reach each

person's home (this is a door-to-door monitoring job!!). Another problem is the lack of office equipment to make and keep records. Obviously almost all of these problems are due to lack of funds. The periodical monitoring is important because it can be used to compare with the final overall evaluation.

Nevertheless, the work goes on but with terrible strain and we have agreed never to let our husbands meet because if they did they would compare notes and/or gather the guts to stop us from working for so many days outside the home, coming back with empty hands.

We also feel it very unfair for our families to suffer but we sympathize with the communities which are eager to learn how to take care of the environment. We are also strong believers who always think that one day the financial crisis will be overcome!

There are some key results which JEEP is proud of, such as how people have become aware of environmental problems and are seeking advice which has resulted into higher demand for training. The number of trainees is multiplying due to the training of trainers methods. We have also noticed much more interest because the courses include men in the energy (kitchen) training and all men and women, old and young, literate and non-literate can acquire the skills. It is a blessing to mothers whose children have suffered from malnutrition due to lack of proteins from beans, peas, etc. because they can now cook with the right foods due to energy saving stoves or magic basket cookers. The smoke is almost no longer a problem for women and children. These are just a few of the many problems which are part of the wood energy crisis we are attemtping to overcome.

Self-reliant Healthy Communities through Environmental Adult Learning:

The Multi-Purpose Training and Employment Association (MTEA), Uganda

by George Musisi
MTEA, Iganga-Uganda

Background

Uganda has an estimated area of 211,088 square kilometres of which 197,096 (81%) is land area. Of this, seventy percent is estimated to be cultivated with excellent agriculutral potential. With an estimated population of 17 million people, 90% live in rural areas with agriculutre as the main occupation.

The Multi-Purpose Training and Employment Association (MTEA) is a community-based adult education NGO. It was created in 1986 by civic-minded Ugandans concerned about the plight of poverty-stricken, rural populations. Its headquarters is in Iganga town in the eastern region of Uganda. The organization uses education to help people overcome common obstacles to community development in rural areas.

MTEA was founded with the objective of promoting self-reliance within rural communities especially women's groups, youth groups, the aged and disadvantaged through the establishment of Savings Clubs, practising modern farming methods and any other activity that is geared towards improving people's standard of living. Other work includes the sharing of the theory and pracrtice of community development at conferences, in adult literacy classes and through workshops and seminars.

A need to strengthen education arose when the MTEA field workers undertook a survey in the rural areas and developed a report whch showed that food insecurity and poverty had increased in the area due to unfavourable soil, unstable climatic conditions and increased pressure on the land. High illiteracy rates were also identified as a problem to development.

Values and Principles

In order to ensure systematic rural development, people need to be involved in idenfying their own problems and needs and the development of solutions. Rural people have often felt 'cheated' by politicians who meet with them, promise changes during campaigns and then once elected, never return to the area until the next election.

Most people realize the importance of a healthy environment, e.g. clean air water and sufficient food, the need for fuelwood and lack of alternative sources has resulted in desforestation of large areas. In addition, there are no policies for the use of soil or land use, and by-laws developed in the pre-independence era are not enforced.

Although the environment cannot remain untouched in all areas since people need the land for survival, the resources it provides must be handled in a sustainable way. Education plays a key role in making the transition for over-using resources to using them more equitably and sustainably.

Description of the Program

To date, the environmental education programs have focued on the reduction of resource use and degradation and the promotion of environmentally-sustainable development. There is currently much emphasis on community participation in tree planting and soil rejuvenation. Training sessions have been conducted with members of 48 community-based organizations. The purpose of these educational sessions was to help those working on the ground in communities to understand the importance of full participation by everyone as well as to provide facilitation skills and technical awareness.

Since poverty is a major reason why people are forced to degrade their environment, the MTEA supports projects related to environmental protection and the generation of income such as zero-grazing, which involves the growing of both grass and tree fodder and using cow dung for fertilizer. The understanding of and implementation of crop rotation is also supported. Expert advice has been made available to farmers as well as seeds or other plants.

The program has also focused on teaching women how to use existing resources in more sustainable ways. In addition, adult literacy sessions have been successful with positive results.

Obstacles

Lack of political support has been one of the primary constraints to the development of further educational efforts. This lack of political will has also meant that by-laws have not been enforced, which has lead to decreased land productivity. This has had adverse effects on social and economic activities.

In addition there are techological and transportation problems which have interfered with educational activities. For example, poor transport and lack of equipment has meant that many training materials such as videos and other visual aids that would have been helpful, have had to be left behind.

Evaluation

Evaluation processes are used regularly. Training and program participants are asked to fill out questionnaires about the effectiveness. Other methods of evaluation include observation by staff members, and group interviews and meetings.

Integrating Environmental Education into Daily Life Activities in Uganda

by Owor Peter Minor, MTEA

Background

The Multi-purpose Training and Employment Association (MYEA) is a community-based adult education non-governmental organization (NGO)designed to promote a healthy environment for all. It is an organization which focuses on the many issues pertaining to the survival of humans and their environment. The focus of this case study is a description of adult education methods designed to address problems created by technological advancement, in particular the polythene packaging issue. The place is Uganda, an African country located within the great lakes region.

In principle, technological advancement should have positive attributes, but in many areas of the globe it has had disastrous results. Uganda is a country endowed with fertile soil, and a good climate. However, this country is experiencing many problems with technological advancement. One major problem is caused by the importation of polythene packaging materials. Buvera, which constitutes these materials, does not decompose and polythene litter is destroying the soil composition and organic process. Three quarters of rural households litter their environment with this packaging, damaging the soil in particular.

Therefore, the target groups of this project are the peasant farmers, the majority of which are women and the youth. Through community-based organizations, women's organizations and churches, attempts are being made to raise awareness of the problems and to find ways to deal with them.

Values and Principles

At first, the individuals and groups focussed on the need for the government to address the problems. However, through discussion and participation in various workshops, they began to understand the connectedness of people with nature and the impact humans have on the environment. They questioned the responsibility of the polythene manufacturers for the negative effect of their products on the environment. They became aware of their victimization by multi-nationals and the first world nations which dump their products on African countries without caring about the destruction of the environment. As awareness increased, having discovered that environmental degradation has no boundary, people have been willing participants in a restoration program.

Description of the Program

As a result of the efforts of the Multi-purpose Training and Employment Association, environmental education has been integrated into daily life activities, through literacy programs, participatory workshops, and local community "think tanks". Emphasis is on community participation in decision-making. Important to the educational process is raising awareness of human connectedness with the environment and that all life comes from it. Also, participants are encouraged to promote traditional and cultural methods of preservation, giving them confidence in their traditional methods of "science" and a realization that it is not witchcraft.

As well as emphasizing the misuse of polythene, the project has included establishment of new forests; involvement of the government through the provision of an environmental action plan and legislation; the integration of environmental programs in primary school curriculums; and award presentations to individuals for outstanding participation in environmental preservation.

Outcomes

There has been continual monitoring and evaluation of people's responses to the educational processes used, and a major outcome is the increased awareness of the dangers caused by polythene materials to the environment. Results also include increased community involvement in decision-making, prioritizing of issues, visioning, and in particular, integration of environmental education into daily life activities.

The Bulubandi Women's Group:
A Story of Adult Environmental Learning in Uganda

Compiled by Ruth Namusubo

The Bulubandi Women's Group is composed of ten women who depend almost entirely on small-scale farming. These women have many things in common such as small plots of land, families composed of too many children, lifestyle and associated problems.

For many years, these women had been relying on their husband's incomes to buy food for lunch and supper with a uniform complaint of having small plots of land which were not enough to plant sufficient food for their families. This led to their inability to send their children to school because income was insufficient and food was taken as the first priority. This dependency syndrome continued until the husbands held a strike. They did not buy any more food for the families.

One day the Uganda Change Agent Association approached these women to raise awareness around the issue of sustainable development. Before the woman educator spoke with them, they raised their issue of hunger and expected possible solutions from the Change Agent Association. She asked them what was the root cause of their hunger and their families. They responded that perhaps their husbands had other women elsewhere that they were buying food for. The educator responded that she did not have a particular response to that, but she introduced the topic of sustainable development. She advised them to sustain themselves with their small plots explaining that this would depend upon the wise use of the resources and protection of the environment. Renewable resources (trees, plants, animals, clean air and water) must be managed in such a way that their reproduction is not less than the demands for their use as raw materials. During this talk, one women interrupted:

> *Madam, as we have told you, we have only small plots of land and when you talk about the environment we think only of planting trees.*

The woman educator replied that environmental protection was not just about planting trees. It is also about good treatment and management of trees, plants, animals, water and air. She also suggested that it was possible to initiate a variety of projects on the small plots of land, some which could earn income and some which could provide food directly to the families. A number of ideas were put forward and discussed:

1. That the women start nursery beds of trees especially those good for compounding umbrella species. While sowing the seedlings, they could earn money for their families. At the same time, those who purchased the seedlings could plant them and enhance the environment.

2. That the women plant species of trees that could be used for many purposes such as lucina. *What are those and how multi-purpose are they?* asked one woman. The lucina when planted could be fertilized by soil with its leaves which drop down and when branches are cut, they can act as animal feed for goats and cows which in turn will produce more milk. In addition, when pounded, the leaves are a nutritious poultry food and when dry, the branches can be used as firewood.

   The women were very pleased to learn about this tree and were anxious to plant it. They pestered the Change Agent to bring them the seeds of the umbrella and the lucina trees. When they arrived, nursery beds were created. The women have earned cash from the growth of these trees.

Since those days, the members of the Buliband Women's Group are happy with their families and are no longer starving. Management of renewable resources is important and became a model of training in this community.

An Integrated Biogas/Fodder Education Project for Small-Scale Dairy Farmers in Zimbabwe

by Lucy Ann Ruzive
Zimbabwe

Introduction

Biomass Users Network (BUN) is an environmental non-profit organization. It was established in Zimbabwe in 1989 and was formally registered as a welfare organization in 1991. BUN is involved in various environmental and biomass-related projects in the rural areas of Zimbabwe. Some of the projects are summarized below.

> *Plant Oil Project*: Production of Jatropha Curcas as a source of plant oil for substituting paraffin and diesel. The Jatropha plants adapts well to diverse ecological conditions, therefore it can be integrated into afforestation programs.
>
> *Solar Project*: The objective of the project is to bring electricity cheaply to the rural people, through newly established rural credit mechanisms. The beneficiaries are mainly subsistence farmers and small-scale commercial farmers.
>
> *Biogas project*: For providing gas for cooking and lighting to rural communities, especially to women. This project has so far involved individuals and institutions such as schools and churches in different districts of the country. The case study involves a small farming community.

The case study was implemented with resettled, small-scale dairy farmers in collaboration with a parastatal organization, the Agricultural and Rural Development Authority (ARDA) which runs the dairy project as part of its Dairy Development Program. ARDA provides technical support for the dairy farmers, including veterinary care, artificial insemination and training in many aspects of dairy farming. There were 350 farmers in the dairy scheme.

Project Area

The integrated biogas and fodder project took advantage of the already existing infrastructure which was in place. The project area, Rusitu Small Scale Resettlement

scheme, is situated in the eastern Highlands of Zimbabwe bordering Zimbabwe and Mozambique. The farmers in the scheme were chosen on the basis of experience and ability. Each farmer was allocated 4 hectares of land of which 2.5 ha. was allocated for fodder growing, 1 ha. to agricultural crops and 0.5 ha. for buildings. The terrain in the project area is mainly undulating and the area is in the high rainfall zone of Zimbabwe, classed as Natural Region I, where farming is specialized and diversified.

The project objective was to minimize environmental degradation in the newly settled area through biogas technology and planting of multipurpose tree species. Biogas was intended for cooking and lighting while tree planting was mainly to provide fodder for the cattle which are zero-grazed.

At the inception of the project, a Participatory Rural Appraisal (PRA) workshop was conducted so as to involve the community in the design of the project. The PRA revealed a number of issues. Shortage of fodder during the dry season affected milk production which was their only source of income. The farmers suggested that they would welcome any means of providing dry season fodder. As a solution, planting of fodder trees and grass species was advocated and a list of tree species was produced. The farmers did not welcome the idea of a communal biogas plant or fodder bank because they were not grouped in a village-type settlement. A number of the farmers pointed out that they had labour commitments and could not afford time to ferry cowdung to biogas plants.

Approach

To solve some of the problems which were highlighted during the PRA, a mini survey was conducted to identify those plots where the slope could allow cowdung to flow towards the digester without the digester being situated far from the homestead. At least 25 plots were found to have a suitable layout and were earmarked for biogas plants. The short listed fodder species included cassava, leucaena, acacias, sesbania and other grasses. The project focused on multipurpose tree and shrub species.

A one-day workshop was conducted to discuss the management of the cassava and leucaena spp. as fodder. From the discussion it was clear that farmers were aware of cassava as a food crop and not as fodder. They were impressed to learn that they could harvest cassava during winter and chip and dry the tubers for feeding their cattle during the dry season. Leucaena trees were to be managed as bushes by cutting fresh branches and feeding the cattle in the pens. At this workshop an agreement was reached to establish a leucaena demonstration plot which was to be managed as seed bank for future plantings. BUN was to provide seedlings for this plot. Pamphlets on how to manage and maintain biogas plants were distributed to interested farmers. By now most plot holders have planted leucaena on their plots and fed some leaves to their cattle as supplement.

A biogas demonstration plant was constructed at the designated demonstration plot. This was taken as an opportunity to train the local builders. The training encompassed short lectures and practical work in the actual construction.

Educational Work

At project inception, a participatory approach was used and was augmented by a small survey where people responded to a questionnaire. Participants included local farmers, government extension officers from the Agricultural and Natural resources departments, and two Biomass Users Network staff. Thirteen extension officers were trained as resource persons for the workshop.

The participatory approach was organized in three phases:

1. Training of trainers: an expert in PRA technique trained officers as resource persons. During training resource persons were made aware of the following PRA techniques:
    - Full and active participation of farmers
    - Respect for community members
    - Interest in what the local people know, say, show, and how they want projects done in their areas of development
    - Patience, not rushing and not interrupting
    - Listening and not lecturing or imposing
2. Farmer participation: the farmers were divided in groups, where group interviews were conducted. The resource persons only acted as facilitators while the farmers were encouraged to come forward independently.
3. Report presentation from farmer groups: group leaders presented their reports for discussion.

Results of Program and training activities

1. Farmers learned communication skills during interviews and mapping.
2. Ten builders were trained on biogas plant construction.
3. Rural development officers were trained on how to conduct PRA and also gained a lot of knowledge from the farmers.
4. Farmers' priorities and preferences were heard and taken into account.
5. Cassava chips were demonstrated as fodder and the growing of cassava has spread within the dairy scheme.

Future Plans

It is envisaged that when there is sufficient cassava being cultivated, small scale processing technology such as manual chippers will be introduced. Plans are under way to also introduce Jatropha Curcas (JCL) as an energy tree. The oil from, JCL seeds can be used for household illumination, soapmaking and sold for other commercial uses. The cake from the oil press is good as manure and can also be used in the production of biogas.

Many of the proposed activities can be undertaken by women's groups, for example cassava chipping, drying and marketing, soap making and selling of organic manure from JCL. All this calls for ongoing training in not only the technical aspect, but also administration and bookkeeping skills to ensure autonomy and therefore sustainability.